

AMENDMENTS TO THE CLAIMS:

This listing of the pending claims will replace all prior versions and listings of claims in this application:

1. (Currently Amended) A teaching pendant enabling device including first and second enabling signal circuits each configured to selectively output an enabling signal for enabling a teaching signal given to a mechanical apparatus in accordance with operated states of first and second deadman switches each configured to assume a first OFF-state when unoperated, an ON-state when half-operated, and a second OFF-state when completely operated, wherein the first and second deadman switches have six contacts respectively,

the teaching pendant enabling device comprising:

two switching means configured to open/close an enabling signal output line of a respective one of the first and second enabling signal circuits; and

first and second monitor circuits each configured to actuate a respective one of the two switching means in accordance with results of detection of the operated states of the first and second deadman switches,

~~wherein, after an operating member of at least one of the first and second deadman switches has been turned into the second OFF-state, each of the first and second monitor circuits causes the respective one of the two switching means to keep the output line in an open state until both of the first and second deadman switches each made to assume the first OFF-state are detected~~

wherein the first deadman switch (1a) has:

first to fourth contacts (msw1a, msw2a, msw3a, msw4a) each configured to become open or closed in accordance with any one of operated positions including a first position assumed in an unoperated condition, a second position assumed in a half-operated condition, and a third position assumed in a completely operated condition; and

first and second main contacts (sw1a, sw2a) each configured to assume an OFF-state at the first and third positions and an ON-state at the second position,

wherein the second deadman switch (1b) has:

fifth to eighth contacts (ms1b, msw2b, msw3b, msw4b) each configured to become open or closed in accordance with any one of operated positions including a first position assumed in an unoperated condition, a second position assumed in a half-operated condition, and a third position assumed in a completely operated condition; and

third and fourth main contacts (sw1b, sw2b) each configured to assume an OFF-state at the first and third positions and an ON-state at the second position,

wherein the two switching means are first and second relays (R1, R2), the first relay (R1) having first and second normally open contacts (R11, R12) and a ninth normally closed contact (R13); and the second relay (R2) having third and fourth normally open contacts (R21, R22) and a tenth normally closed contact (R23),

wherein the first enabling signal circuit (C1) includes the first normally open contact (R11) of the first relay connected in series with a parallel circuit parallel-connecting the first and third main contacts (sw1a, sw1b); and the second enabling signal circuit (C2) includes the third normally open contact (R21) of the second relay connected in series with a parallel circuit parallel-connecting the second and fourth main contacts (sw2a, sw2b), and

wherein the first monitor circuit (C3) connects the first relay (R1) in series with a parallel circuit parallel-connecting a first series circuit (C31) in which the first and fifth contacts (msw1a, msw1b) and the tenth normally closed contact (R23) of the second relay are connected in series, and a second series circuit (C32) in which the third and seventh contacts (msw3a, msw3b) and the second normally open contact (R12) of the first relay are connected in series; and the second monitor circuit (C4) connects the second relay (R2) in series with a parallel circuit parallel-connecting a third series circuit (C41) in which the second and sixth contacts (msw2a, msw2b) and the ninth normally closed contact (R13) of the first relay are connected in series, and a fourth series circuit (C42) in which the fourth and eighth contacts (msw4a, msw4b) and the fourth normally open contact (R22) of the second relay are connected in series.

2. (Currently Amended) The A teaching pendant enabling device according to claim 1, including first and second enabling signal circuits each configured to selectively output an enabling signal for enabling a teaching signal given to a mechanical apparatus in accordance with operated states of first and second deadman switches each configured to assume a first

OFF-state when unoperated, an ON-state when half-operated, and a second OFF-state when completely operated, wherein the first and second deadman switches have six contacts respectively,

the teaching pendant enabling device comprising:

two switching means configured to open/close an enabling signal output line of a respective one of the first and second enabling signal circuits; and

first and second monitor circuits each configured to actuate a respective one of the two switching means in accordance with results of detection of the operated states of the first and second deadman switches,

wherein the first deadman switch (1a) has:

first to fourth ~~normally-closed~~ contacts (msw1a, msw2a, msw3a, msw4a) each configured to become open or closed in accordance with any one of operated positions including a first position assumed in an unoperated condition, a second position assumed in a half-operated condition, and a third position assumed in a completely operated condition; and

first and second main contacts (sw1a, sw2a) each configured to assume an OFF-state at the first and third positions and an ON-state at the second position,

wherein the second deadman switch (1b) has:

fifth to eighth ~~normally-closed~~ contacts (msw1b, msw2b, msw3b, msw4b) each configured to become open or closed in accordance with any one of operated positions including a first position assumed in an unoperated condition, a second position assumed in a half-operated condition, and a third position assumed in a completely operated condition; and

third and fourth main contacts (sw1b, sw2b) each configured to assume an OFF-state at the first and third positions and an ON-state at the second position,

wherein the two switching means are first and second ~~relays (R1, R2)~~ switching means, the first ~~relay (R1)~~ switching means having first and second normally open contacts (R11, R12) and a ninth normally closed contact (R13); and the second ~~relay (R2)~~ switching means having third and fourth normally open contacts (R21, R22) and a tenth normally closed contact (R23),

wherein the first enabling signal circuit (C1) includes the first normally open contact (R11) of the first switching means connected in series with a parallel circuit parallel-connecting the first and third main contacts (sw1a, sw1b); and the second enabling signal circuit (C2)

includes the third normally open contact (R21) of the second switching means connected in series with a parallel circuit parallel-connecting the second and fourth main contacts (sw2a, sw2b), and

wherein the first monitor circuit (C3) connects the first ~~relay (R1)~~ switching means in series with a parallel circuit parallel-connecting a first series circuit (C31) in which the first, and fifth, contacts (msw1a, msw1b) and the tenth normally closed contacts contact (msw1a, msw1b, R23) of the second switching means are connected in series, and a second series circuit (C32) in which the third and seventh ~~normally closed~~ contacts (msw3a, msw3b) and the second normally open contact (R12) of the first switching means are connected in series; and the second monitor circuit (C4) connects the second ~~relay (R2)~~ switching means in series with a parallel circuit parallel-connecting a third series circuit (C41) in which the second, and sixth, contacts (msw2a, msw2b) and the ninth normally closed contacts contact (msw2a, msw2b, R13) of the first switching means are connected in series, and a fourth series circuit (C42) in which the fourth and eighth ~~normally closed~~ contacts (msw4a, msw4b) and the fourth normally open contact (R22) of the second switching means are connected in series.

3. (Cancelled).

4. (New) A teaching pendant enabling device including n ($n \geq 3$) enabling signal circuits each configured to selectively output an enabling signal for enabling a teaching signal given to a mechanical apparatus in accordance with operated states of n deadman switches each configured to assume a first OFF-state when unoperated, an ON-state when half-operated, and a second OFF-state when completely operated, comprising:

n switching means each configured to open/close an enabling signal output line of a respective one of the n enabling signal circuits; and

n monitor circuits each configured to actuate a respective one of the n switching means in accordance with results of detection of the operated states of the n deadman switches,

wherein each of the n deadman switches has:

two sets of normally closed contacts each set including n normally closed contacts, each normally closed contact configured to become open or closed in accordance with

any one of operated positions including a first position assumed in an unoperated condition, a second position assumed in a half-operated condition, and a third position assumed in a completely operated condition; and

n main contacts each configured to assume an OFF-state at the first and third positions and an ON-state at the second position,

wherein each of the n switching means has two normally open contacts and a normally closed contact,

wherein the i th ($1 \leq i \leq n$) enabling signal circuit of each of the n enabling signal circuits includes a first normally open contact of the i th switching means connected in series with a parallel circuit parallel-connecting the i th main contacts of each of the n deadman switches, and

wherein the i th monitor circuit of each of the n monitor circuits connects the i th switching means in series with a parallel circuit parallel-connecting a first series circuit in which the i th normally closed contacts of a first set of each of the n deadman switches and a normally closed contact of any one of the switching means except the i th switching means are connected in series, and a second series circuit in which the i th normally closed contacts of a second set of each of the n deadman switches and a second normally open contact of the i th switching means are connected in series.